IV. ENROLMENT AUDIT

The Ministry of Colleges and Universities requires an audit of enrolment data for institutions eligible for support under the Ontario Formula for Operating Grants and under the Program of Support for Church-Related Universities and Colleges. The objective of the audit shall be to render an audit report in the prescribed form.

1. Responsibility of Auditors

Auditors are responsible for providing an opinion on institutions' enrolment reports to the Deputy Minister of Colleges and Universities in keeping with the spirit of Section 5805 of the CICA Handbook - Special Reports, explaining an audit opinion on financial information other than financial statements:

AUDITOR'S REPORT

To the Deputy Minister of Colleges and Universities:

At the request of (name of institution) we have examined the attached enrolment reports totalling (number) basic income units and formula fees of $(amount) for the academic year 19__/__ which have been submitted to us by the Ministry of Colleges and Universities. Our examination was made in accordance with generally accepted auditing standards, and accordingly included a general review of the records and procedures by which the above enrolment reports were prepared and such tests of the records of (name of institution) and other supporting evidence as we considered necessary in the circumstances.

In our opinion, the attached enrolment reports present fairly the weighted enrolment and formula fees of (name of institution) for 19__/__ for funding purposes in accordance with instructions issued by the Ministry of Colleges and Universities in the most recent editions of the Ontario Operating Formula Manual, dated (month), 19__/__ and Essential Notes and Reporting Instructions, dated (month), 19__/__ or through correspondence.

City _____ (signed)_____
Auditor

Date _____

If the auditor is able to complete the audit report without qualification (because adequate assurance has been obtained from the audit work that the upper limit of errors throughout the enrolment reports does not exceed the materiality limit), it will not be necessary to disclose any known or projected errors to the Ministry; reporting requirements will, in these circumstances, be fully met by the submission of a signed audit report in the prescribed form.

If, on the other hand, based upon the results of the examination, he is <u>not</u> able to complete the prescribed report without qualification(s) then he shall report these findings to the Deputy Minister of Colleges and Universities explaining fully the circumstances involved, and will await further direction as to how to proceed with the examination.

It is recognized that during the course of his examination the auditor may wish to seek clarification or direction in regard to such matters as ambiguities arising from applying the categorization scheme. Clarifications and interpretations of the formula for operating grants are the responsibility of the Ministry. If, therefore, the auditor wishes to consult, or to seek clarification or direction with respect to the examination, it should be done in writing to the Director, University Relations Branch,Ministry of Colleges and Universities.

The auditor of each reporting institution will provide the Deputy Minister of Colleges and Universities with the enrolment audit report by December 31 following the conclusion of the academic year concerned and will provide a copy of all correspondence in this connection to the President (or his equivalent) of the university or college concerned.

2. Responsibility of Institutions

Each university or college must formally advise the firm of public accountants retained by it that an audit of enrolment is a condition for payment of enrolment-related operating grants and that the required examination for this purpose has been authorized. A copy of this letter should be forwarded to the Ministry, where it will serve as authorization for direct communication with the auditors.

3. Responsibility of the Ministry of Colleges and Universities

The Ministry of Colleges and Universities will provide the following to the auditor of each institution:

3.1 A summary of enrolment data received from the institution. (The auditor to confirm with the president and enrolment reporting officer their acceptance of it as a correct summary).

The enrolment data submitted will have been carefully reviewed and their arithmetical accuracy proven. Changes, if any, to the data submitted will have been noted and agreed to by the reporting institution.

3.2 An updated version of the Ontario Operating Formula Manual.

3.3 An updated version of the Essential Notes and Reporting Instructions.

4. Guidance for Auditors

Determination of appropriate procedures and the scope of the audit necessary to support an opinion is a responsibility of the auditor. In making this determination, the procedures he selects will not be limited to, but should include, the following factors traditionally considered essential to any enrolment audit:

4.1 A general review of student records and related procedures to ensure their adequacy for satisfactory completion of the enrolment reports.

4.2 A choice of either statistical sampling or judgemental testing as the audit approach most appropriate in the circumstances.

4.2.1 IV.6 provides guidance with respect to statistical sampling techniques as applied to the audit of enrolment. The Ministry has prescribed a sampling confidence level of 95% and a materiality limit of 2% (with respect to the upper limit of net overstatements). That is, the statistical results yielded by a random sample must be such as to give the auditor at least 95% confidence that the total BIU's reported on the year's enrolment reports are not overstated by a net amount of more than 2%.

4.2.2 If, instead, judgemental testing procedures are used, the auditor should be satisfied that the audit tests of BIU records provide evidence at least equivalent to that required for an unqualified opinion where statistical sampling techniques are used.

4.3 The audit should highlight any areas of ambiguity encountered in applying the formula categorization scheme or the rules for determining eligibility for funding of programs or students and obtain a satisfactory authority reference for the manner in which the institution has dealt with situations not explicitly provided for in the Ontario Operating Formula Manual.

4.4 The audit should include an examination of the reasons for changes between enrolment as reported and as approved by the Ministry of Colleges and Universities. Procedural weaknesses should be noted so that the institution may take appropriate action to prevent their recurrence.

4.5 The audit should satisfactorily reconcile total fees computed, using reported enrolment data and the fee schedule of the institution, with academic fees as reported in the audited financial statements.

4.6 The auditor should obtain, in the prescribed form (see IV.5), a certificate from the institution's registrar, attesting that (except as noted) enrolments in all programs of study offered fall within the formula categories under which they have been included. In addition, this certificate will declare that all enrolment reported is eligible for purposes of determining grant assistance except as noted in the certificate.

4.7 Three areas requiring special audit procedures are:

- Formula units at the graduate level,
- Study Abroad Courses and Programs, and
- Foreign Student Formula Fees.

4.7.1 IV.7, Part I, entitled "Audit Implications" (of the methods and procedures for establishing formula entitlements at the graduate level) lists some possible audit tests applicable to formula units at the graduate level. IV.7, Part II, is a certification of graduate student status and eligibility for formula operating grant support (to be used for "verifying" some of the less auditable criteria).

4.7.2 IV.8 summarizes the information an auditor would need in order to verify the eligibility for formula funding of a student on a study abroad course or program. Institutions are required to keep on file a completed copy of this form, signed by a dean and the registrar (or their equivalents), for every study abroad course or program offered by the institution.

4.7.3 IV.9 outlines the procedures to be used by institutions and their auditors to identify foreign students for purposes of applying the foreign student fee policy and to determine conformity of institutional practice with this policy.

5. REGISTRAR'S CERTIFICATION

Form of Certification in Connection with Audit of Enrolment

UNIVERSITY LETTERHEAD

Registrar's Certification in Connection with
Audit of Enrolment

TO: (Name of Auditors)
(Institutions)

(Session)

Dear Sir:

In connection with your examination of the enrolment reports for (session) submitted to the Ministry of Colleges and Universities and the records from which these have been prepared I hereby certify that to the best of my knowledge and belief:

1. That all records have been maintained in a manner consistent with the internal university procedures established for the compilation of enrolment data and that the figures shown on the enrolment reports agree with these records.

2. That there is explicit authority for inclusion of enrolments in all programs of study offered by the university within the formula categories under which they have been reported, except as noted below:

3. That all students ineligible for support under the provisions of the Ontario Formula for Operating Grants have been excluded in determining the operating grant which has been paid.

— The numbers of such students and the programs of study in which they are enrolled are as noted below.

4. That all relevant instructions and provisions applicable to the completion of the enrolment reports and the determination of the operating grants have been correctly followed.

Yours truly,

_____

_____

Title

To be signed by Registrar (or such other university official as is responsible for completion of MCU Enrolment reports).

6. Statistical Sampling

Extracts from a letter dated October 18, 1972 from Clarkson, Gordon & Co. to Mr. F. J. Kidd, on the subject of the application of statistical sampling techniques to enrolment auditing.

Background

An auditor does not and cannot "certify to the accuracy" of figures in a financial statement (or enrolment report) first because the accounting principles governing its preparation always require judgement in application and secondly because it is usually completely impractical for the auditor to check 100% of the underlying transactions. Instead, the auditor bases his examination on tests guided by analyses of the figures, internal reconciliation of balances, review of internal control, and so on and then reports, if appropriate, that "in his opinion" the financial statement (or enrolment report) "presents fairly" the financial position or other information required (such as the "weighted enrolment").

The words "in his opinion" imply that the auditor cannot provide 100% certainty but rather a reasonable degree of confidence as a result of his audit work. The words "present fairly" imply that the auditor cannot report that the financial statement (or enrolment report) is accurate to the cent but rather that (subject to the reasonable degree of confidence mentioned above) it is not mis-stated by a material amount. Any audit therefore implies a choice of confidence level and materiality limit. Such choices are made implicitly when an auditor employs judgemental testing procedures (he intuitively decides how much he must test to be reasonably sure of detecting a material error if present). When an auditor employs statistical sampling procedures, however, the choice of confidence level and materiality limit (which in turn determine sample size) must be made explicit.

The Ministry has stated that for the purposes of the enrolment audit the university auditor may employ either statistical sampling techniques or judgemental testing procedures. Where the nature of the enrolment records, however, permits the application of statistical sampling techniques most university auditors will wish to consider such application seriously because of the benefits of greater objectivity to be derived therefrom. The following material is intended to indicate a method of applying such techniques.

Prescription of confidence level and materiality limit

The Ministry has prescribed a sampling confidence level of 95% and a materiality limit of 2% (with respect to the upper limit of net overstatements) where the university auditor employs statistical sampling procedures in arriving at an opinion on the reported "weighted enrolment".

There are various different components of a complete enrolment audit: studying the system of internal control, reconciling reported academic fees to reported enrolment, sampling records of 'basic income units' (BIUs) to verify 'weighted enrolment' reflected in the year's enrolment reports, etc. The following material, however, addresses itself exclusively to the statistical sampling of BIU records to verify the year's enrolment reports.

Statistical sampling of BIUs

What is required is a statistical sample of BIU records that will yield 95% sampling confidence that total BIUs reported on the year's enrolment reports have not been overstated by more than 2%[1].

Since the objective of the audit test is to assess the frequency of net overstatements in total reported BIUs, the direction of the audit test must clearly be from the reported BIUs back to underlying enrolment records.

The first question is whether the auditor should select a random sample of students or a random sample of BIUs (in the former case every student would have an equal chance of selection while in the latter case every BIU would have an equal chance of selection). If the former method is chosen the auditor will be able to arrive at a statistical conclusion that X% of the student records may contain BIU overstatements. The auditor will not, however, be able to convert this conclusion into a rigorous statistical conclusion with respect to total BIUs themselves.

If the X% of overstated student records were or might be mostly graduate students, then total BIUs might well be overstated by far more than X% (since each graduate student overstatement might be an overstatement of several BIUs). It is possible that additional judgemental testing (particularly among graduate records) may still permit the auditor in such a case to arrive at a reasonable judgemental conclusion. Nonetheless, it is desirable, where feasible, to obtain a statistical conclusion directly relating to reported BIUs and this can be done by drawing a statistical sample of BIUs.

The first point is, therefore, that it is desirable for the auditor to draw a random sample of BIUs: that is, every BIU among the total reported BIUs should have an equal chance of selection in the audit sample.

Such a procedure will, for example, give somewhat more chance of selection to graduate students than to undergraduates but this is appropriate since, in terms of BIUs, each of the former has a greater potential for overstatement than each of the latter.

Mechanics of drawing a statistical sample of BIUs:

Pure random sampling involves making a new random draw on each selection. A far less cumbersome procedure, however, is to use 'systematic' or 'interval' sampling whereby the auditor selects every nth BIU throughout the population. This requires two things:

(1) that the auditor can identify a set of BIU records (the 'population') that he has added (or will add) and agreed (or will agree) in total to the total BIUs reported on the year's enrolment reports, and

(2) that he can by some method count through this population of BIUs in order to select every nth one.[2]

For example, if the total population amounts to 4,000 BIUs and the auditor has estimated that he will need a sample of 400 BIUs (sample size determination is discussed below) he would want to select every 10th BIU throughout the entire population. The counting through the population to pick every 10th BIU may be able to be done manually (if the BIU records exist on visible accounting reports) or by computer (if the BIU records exist on computer files).

There is a risk that 'interval sampling' may contain a bias (if there is any periodicity or clustering in the pattern of errors throughout the population). For this reason, it is desirable for the auditor to use either 'randomly varying intervals' (the better method) or 'fixed intervals following several random starts'.

With the preferable method of 'randomly varying intervals' the auditor would use a stream of random intervals (obtained either from random number tables or a computer program) averaging to the desired average interval. For example, in the case above, if the auditor wishes 400 selections out of 4,000 BIUs he needs to

select at an average interval of 10, but the specific intervals would vary randomly above and below 10 (e.g. he might count along 7 for the 1st selection point, another 15 for the 2nd, and so on). One method of obtaining varying intervals averaging to 10, for example, is to pick random numbers between 1 and 20 (twice the desired average interval), which, if enough are selected, will be bound to average to close to 10.

If, however, the auditor uses fixed intervals, he should take several random starts. One method (still using the above example) is to pick 3 random starts each between 1 and 30 at the very beginning of the population and then fixed intervals of 30 after each of these starts (producing in total about 400 selections). Another method is to pick a random start between 1 and 10 at the beginning of each third (or smaller division) of the population followed by fixed intervals of 10 thereafter throughout that division of the population. These methods are generally considered acceptable but the method of varying intervals described in the previous paragraph is to be preferred.

Evaluation of a Statistical Sample of BIUs:

The evaluation of statistical samples will now be discussed and, following that, the planning of required sample size.

Suppose, temporarily, that a university consisted solely of students having 1 BIU each and that the only errors discovered by the auditor were instances where the student should not have been included at all (i.e. each discovered error represented a 1 BIU overstatement).

Statistical attribute sampling tables for 95% confidence (the confidence level prescribed by the Ministry) indicate the following:

For 95% confidence[3]

Number of errors found in sample	'Upper error limit' factor
0	3.00
1	4.75
2	6.30
3	7.76
4	9.16
.	.
.	.
.	.
.	.
.	.

where:

$$\text{'upper error limit' frequency} = \frac{\text{'upper error limit' factor}}{\text{sample size}}$$

For example,

if 0 errors found in a sample of 100,

$$\text{U.E.L.} = \frac{3.00}{100} = 3.00\%$$

if 1 errors found in a sample of 100,

$$\text{U.E.L.} = \frac{4.75}{100} = 4.75\%$$

if 3 errors found in a sample of 400,

$$\text{U.E.L.} = \frac{7.76}{400} = 1.94\%$$

Evaluation for varying error sizes

In practice, of course, a university does not consist solely of students having 1 BIU each but rather some having 1, some 4, some 2.5, etc. Suppose that, in drawing the statistical sample of BIUs, one particular BIU selected happens to fall within a student enrolment record for 4 BIUs. Of course, the auditor cannot verify merely the 1 BIU selected but rather must verify the whole student enrolment record of 4 BIUs. If this whole student record proves to be correct, then obviously the selected BIU therein must be correct too (and accordingly no sample error should be scored for this item). On the other hand if the whole student record proves to be fictitious, then obviously the selected BIU therein is 100% fictitious too (and accordingly a sample error of one 100% fictitious BIU should be scored). If all selected BIUs turned out to be completely right or completely wrong then the table values above could always be used to project the 'upper error limit' of completely fictitious BIUs throughout the population (and this would represent the 'upper error limit' of overstatement in total reported BIUs).

However, in the above example, the auditor may find that the student enrolment record of 4 BIUs should properly have been recorded as 2 BIUs. In this case, the student enrolment record has been overstated by 50% of its reported value. It is logical then to consider each of the 4 reported BIUs (including the one selected BIU therein) as being "tainted" by a 50% overstatement error. In such a case, then, a sample error of one 50% overstated BIU should be scored.

Tainting percentages under 100%

How is such a 50% overstated BIU discovered as the only error, say, in sample of 100, to be projected? Referring to the previous table a sample of 100 containing 1 error had a UEL of 4.75%. It follows, in a sample of 100 containing no 100% errors

and one 50% error, that 100% errors (0 found in sample) have a UEL of 3.00%, while 100% and 50% errors together (1 found in sample) have a UEL of 4.75%. It can be readily shown that the most conservative way of combining these two rigorous statistical conclusions is to attribute a 3.00% possible frequency to 100% errors and the remaining 1.75% possible frequency to 50% errors.

The net UEL would therefore be computed as follows:

Errors found	'Tainting %'	UEL incremental factor		Product	Sample size	Net UEL
0	100% X	3.00	=	3.00		
1st	50% x	1.75	=	.88		
		4.75		3.88	- 100	= 3.88%

To permit such computation to be done when several different errors are found, a table of UEL incremental factors is desirable as follows:

for 95% confidence[4]

Errors found in sample, ranked in declining tainting percentage	'Upper error limit' incremental factor
0	3.00
1st	1.75
2nd	1.55
3rd	1.46
4th	1.40
5th	1.36
6th	1.33
7th	1.30
8th	1.29
9th	1.27
10th	1.26
11th	1.24
12th	1.24
13th	1.22
14th	1.22
15th	1.21

Where:

'upper error limit' frequency value = $\frac{1}{\text{sample size}}$

X 3.00 X 100%
+1.75 X tainting % for 1st error
+1.55 X tainting % for 2nd error
+ etc.

and where:

tainting % of an error = $\frac{\text{amount of error (in BIUs)}}{\text{reported BIUs for that student record}}$ X 100%

For conservatism, it is necessary to rank the errors in order of declining tainting % (as indicated above) since the UEL incremental factors are larger for the early errors. Note that the zero line is always scored at 3.00 X 100% since, even if no 100% errors are found in the sample, overstatement errors as large as 100% each (though no larger) could exist in the population.

Offsetting overstatements and understatements

The above procedures should be applied solely to errors of overstatement discovered in the audit sample. The logic is that individual errors of understatement cannot possibly aggravate any total overstatement and therefore in projecting individual errors of overstatement it is perfectly safe for the auditor simply to ignore any individual errors of understatement. If the gross UEL overstatements projected on the foregoing basis amounts to 2% or less then the auditor is in a position to give an unqualified opinion without consideration of the possible offsetting effect of any understatements.

Cases may arise, however, where the gross UEL of overstatements exceeds the 2% limit and yet it is most unlikely that the net overstatement could be this high because of the offsetting effect of understatement errors. It can be shown statistically that it is proper to deduct from the gross UEL of overstatement errors the MLE ('most likely error' rate) of understatement errors.[5]

The 'most likely error' of understatement (to be deducted above) is equal to the sum of the tainting percentages of individual understatement errors discovered in the audit sample divided by the sample size.

Summary of evaluation procedure

The above procedures can be summarized as follows:

1. after the BIU selection points have been identified throughout the population of reported BIUs, verify the student record in which selected BIU falls.

2. For each selected BIU determine a tainting % as follows:

$$\text{Tainting \%} = \frac{\text{amount of error (in BIUs)}}{\text{reported BIUs for that student record}} \times 100\%$$

3. Rank the overstatement errors in order of declining tainting % and compute the gross UEL of overstatements as follows:

$$\text{gross UEL of overstatements} = \frac{1}{\text{sample size}} \times \left(3.00 \times 100\% + 1.75 \times \text{tainting \% for 1st error} + 1.55 \times \text{tainting \% for 2nd error} + \text{etc.}\right)$$

using the previous table.

4. Compute the most likely error of understatement as follows:

$$\text{MLE of understatement} = \frac{1}{\text{sample size}} \times \left(\text{tainting \% for 1st error} + \text{tainting \% for 2nd error} + \text{etc.}\right)$$

5. Compute upper error limit of net overstatement as follows:

gross UEL of overstatements
- MLE of understatements
= net UEL overstatements

6. Compare the net error limit of overstatements to the 2% materiality limit prescribed by the Ministry.

7. If the net UEL of overstatement is 2% or less, the auditor is in a position to give an unqualified opinion as far as this portion of the audit is concerned (although, of course, the results of other audit work such as the review of internal control, the reconciliation of academic fees, etc. must be assessed judgementally as well).

8. If, on the other hand, the net UEL of overstatement exceeds 2% the auditor is not in a position to give an unqualified opinion. He should then consider the desirability of extending his sample size (this is discussed below). If, however, it seems clear that no amount of sample extension will lead to an unqualified opinion then he must report his findings to the Ministry.

Suggested audit working paper

The audit working paper form shown on the following page can be used to record the statistical evaluation according to the foregoing procedures and contains an example answer to illustrate its use.

In the example illustrated, the auditor discovered four overstatement errors and two understatement errors in his sample of 300 BIUs. The 'most likely' errors are 0.83% overstatements and 0.50% understatements, for a net 'most likely error' of 0.33% overstatements. The university records are probably overstated by only this small 0.33% rate. However, they might, subject to 95% confidence, be overstated by a net amount of as much as 1.83%

EMERGENCY AUDIT

WORKING PAPER FORM FOR EVALUATING STATISTICAL SAMPLE OF 'BASIC INCOME UNITS'

A Identification no. of student records found to contain BIU errors	B As reported	C Should be	D amount understated	E amount overstated	F Understatements $\frac{D}{B} \times 100\%$	G Overstatements $\frac{E}{B} \times 100\%$	H Rank of overstatement error (in declining tainting %)	I UEL incremental factor for this rank of error (per below)	J Tainting % x UEL incremental factor (G x I)
							0	1.00	1.00
A 421	4	3		1		25%	4	1.40	.35
F 218	2	3	1		50%				
L 106	1	0		1		100%	1	1.75	1.75
H 247	1	1.5		1.5		50%	3	1.46	.71
R 151	1	2	1		100%				
S 067	4	1		3		75%	2	1.55	1.16
TOTALS					150%	250%			6.99

Table of Factors for 95% Confidence

Errors found in sample, ranked in declining tainting percentage	'upper error limit' incremental factor
0	1.00
1st	1.75
2nd	1.55
3rd	1.46
4th	1.40
5th	1.36
6th	1.31
7th	1.30
8th	1.29
9th	1.27
10th	1.26
11th	1.24
12th	1.21
13th	1.22
14th	1.22
15th	1.21

	300	300	Sample size 300
	under	over	
'Most likely error' BEE	0.50%	0.83%	Gross UEL of overstatement: 2.33%
		0.50%	less BEE of understatement: 0.50%
Net BEE of overstatement:		0.33%	Net UEL of overstatement 1.83%
			compare to:*
			Prescribed materiality limit 3.00%

*If net UEL of overstatement exceeds materiality limit auditor must either (a) extend sample size and re-evaluate or (b) report why unqualified opinion is impossible

(the net UEL of overstatement). Since this net UEL does not exceed the prescribed materiality limit of 2%, the auditor (subject to the completion and assessment of his other audit work: internal control review, academic fee reconciliation, etc.) is in a position to give an unqualified opinion. Had the net UEL, on the other hand, exceeded the 2% limit, he would have had to consider the possibility of sample extension.

Sample extension

Suppose that in the foregoing example the auditor's sample of 300 had instead contained 3 100% overstatement errors and no understatement errors. The statistical evaluation in this case would have worked out to the following:

MLE of overstatement: $\frac{300\%}{300} = 1\%$

UEL of overstatement: $\frac{7.76}{300} = 2.59\%$

Here the situation is that while the overstatement of reported BIUs is probably only 1% (which would be acceptable) it might subject to 95% confidence be as high as 2.59% (which is unacceptable). Based on the audit work done to date the audit is not in a position to give an unqualified opinion. On the other hand, there is a reasonable indication that the population error is not material (i.e. not as high as 2%) and that a larger sample size will be able to prove this. In such a situation the auditor should extend his sample size by drawing additional items from the population.

Suppose he draws an additional 300 BIUs and finds a further 3 100% overstatement errors therein (the same error frequency as in his initial sample). He now has a total sample of 600 BIUs containing 6 100% overstatement errors. It is appropriate to evaluate this expanded sample of 600 in exactly the same way as already described. The statistical evaluation of the 600 sample would work out to the following:

MLE of overstatement: $\frac{600\%}{600} = 1\%$

UEL of overstatement: $\frac{11.85}{600} = 1.98\%$

It might be noted that the MLE of 1% has not changed but the UEL has been reduced from 2.59% to 1.98% and is now acceptable (as being less than the prescribed 2% materiality limit). Based on the expanded audit work now completed, the auditor is in a position to give an unqualified opinion (always subject to completion and assessment of other audit work: internal control review, academic fee reconciliation, etc.).

In general, extending the sample size should not be counted on to change the MLE (though in any particular case it may in fact change it either up or down) but it can be counted on to reduce the precision gap between the MLE and the UEL, and thus usually to reduce the UEL. A greater amount of audit work permits a more precise answer and so the precision gap between the MLE and the UEL is narrowed.

The UEL will of course always exceed the MLE (there will always be some precision gap however large the sample size). Therefore, if in the auditor's preliminary sample of 300 he had discovered 7 100% overstatement errors - for a MLE of 2.3% and a UEL of 4.4% - there is no point in the auditor extending the sample size. The MLE projected from any extended sample is likely to remain in the neighbourhood of 2.3% and the UEL will be even higher than this. There is therefore little prospect of bringing the UEL down to 2% and thereby obtaining an acceptable conclusion. Indeed, if the initial work indicates that a material error (over 2%) probably does exist and it is unlikely that extended work will provide 95% confidence that a 2% error does not exist, the auditor should not extend the sample but proceed immediately to report to the Ministry.

Guide as to sample extension

The following table can be used as a guide in deciding to what extent an initial sample should be extended (if any extension is appropriate at all).

For 95% confidence[6]

Sample Size	Number of 100% over-statement errors found in sample (assuming no under-statement errors found)	MLE (=sample error rate)	UEL
150	0	0.00%	2%
240	1	.42	2
320	2	.64	2
390	3	.78	2
460	4	.88	2
520	5	.94	2
590	6	1.02	2
660	7	1.06	2
720	8	1.10	2
790	9	1.14	2
850	10	1.18	2

To use the previous example, if the auditor had found a 1% sample error rate in an initial sample of 300 (say, 3 100% errors), it would be reasonable to extend his sample size to 590 (or about 600) since the above table shows that if the 1% sample error rate continues the same when he extends his sample (which is the most likely event) then a sample of 590 is needed before a sample error rate as high as 1% yields a UEL of the desired 2%.

The above table can only, however, be an approximate guide because:

(a) the table is only in terms of 100% errors
- this gives the worst situation
- the situation is not as bad if an equivalent value of smaller errors is found instead
- for example, in a sample of 100:
  - one 100% error yields an MLE of 1% and a UEL of 4.75%
  - but two 50% errors yield an MLE of 1% but a UEL of only 4.65%

(b) the table is only in terms of overstatement errors
- the situation is slightly worse if the equivalent net value of sample errors is made up instead of offsetting overstatements and understatements
- for example, in a sample of 100:
  - 1 1% overstatement sample error frequency yields a UEL of 4.75%
  - but a net 1% overstatement sample error frequency made up of 2% overstatement offset by 1% understatements yields a net UEL of 5.30%.

Nonetheless, use of this table will give a general indication of the extent to which the sample size should probably be increased. Of course, if the sample error rate found in the initial sample is, say 1.6% it may be uneconomical to increase the sample (since a total sample of well over 1,000 items would be required) and a report under section IV.I, paragraph 1 may be preferable.

Note that when a sample is extended the results of the initial sample must not be discarded but rather incorporated into the total cumulative sample. The cumulative sample (initial stage plus extension) must then be re-evaluated using the same procedures as outlined previously.

If a sample is extended from, say 400 to 600, it is also important that the additional 200 selection points be drawn randomly out of the whole population. The mechanics of drawing the additional 200 items are the same as for the first 400 (except, of course, a different average sampling interval is involved). In fact, if there appears to be a reasonable possibility that sample extension may be required, the full 600 points can be identified in the first place (to avoid the need to go back and count through the population of BIUs a second time). In such a case, the initial sample of 400 would be randomly selected out of the 600 identified selection points (perhaps by omitting every third one), the initial sample of 400 verified, and the additional 200 selection points only examined should the initial sample of 400 prove unacceptable.

Planning the initial sample size

The same table presented above as a guide for sample extension can also be used for planning the initial sample size. Referring to this table, it is clear that the initial sample must be no less than 150 items (since a sample of 150 items barely yields a 2% UEL if no sample errors are found). It would, however, generally be imprudent to choose an initial sample size as low as 150 since at this size the discovery of even one error however small, will render the conclusions unacceptable and necessitate sample extension.

Previous years' audit results will obviously be the best guide. For example, if past sample error rates have varied between 0 and 0.6% a sample size of about 300 would seem a prudent choice. Of course, there is always the chance that the current year results may turn out worse and the 300 prove inadequate. In such a case however, the auditor can proceed to extend his sample size (rather than examining an excessive sample size to start with).

It should be stressed that while estimating the required sample size is always an uncertain business (involving, as it does, the anticipation of what sample error rate may be encountered), this uncertainty doe not attach to the final statistical evaluation. Once a sample has been chosen, verified and the sample error rate determined, an objective statistical conclusion can be drawn based on the evaluation procedures described earlier.

Summary of BIU statistical sampling steps

The above procedures for conducting a statistical sample of BIU records can be summarized as follows:

1. Based on prior years' observed error frequencies (or any indications of the current year's frequency) choose an adequate sample size (greater than 150) by reference to the sample extension guide.

   For example, if prior years' observed error frequencies have been in the range of 0 to 0.6%, an initial sample size of about 300 would usually be a prudent choice.

2. If there is a reasonable possibility that subsequent sample extension might prove necessary choose (by reference to the guide) a gross sample size larger than #1. Determine all the gross sample selection points counting through the BIU population either manually or by computer (see above discussion on sampling mechanics). Select the initial sample (#1) out of the gross sample selection points (e.g. by selecting every other one, or every third, etc.).

3. Verify the initial sample and determine the tainting percentages of any individual errors of overstatement or understatement discovered therein.

4. Compute the statistical conclusion arising from the initial sample results by completing the working paper form on page 76. Compare the net 'upper error limit' of overstatement to the prescribed 2% materiality limit.

5. If the net UEL of overstatement does not exceed 2% the auditor is in a position to give an unqualified opinion (subject to the completion and assessment of other audit work: internal control review, academic fee reconciliation, etc.).

6. If the net UEL of overstatement exceeds 2% but the net MLE of overstatement is significantly less than 2% (say, not much in excess of 1%) then there is every indication that an acceptable conclusion will be able to be reached through sample extension. Based on the sample error rate observed in the initial sample, and by reference to the sample extension guide, choose the extended sample size likely to be required.

7. Select additional sample items randomly (either from the population directly or from the additional gross sample selection points already held in reserve in #2) to increase the cumulative sample size up to the extended size chosen in #6. Verify these additional sample items. Re-evaluate the whole extended sample by re-completing the working paper form. Compare the new net 'upper error limit' of overstatement to the prescribed 2% materiality limit. The process of sample extension can be continued in this manner until an acceptable conclusion is reached or until it becomes evident that no acceptable conclusion is possible.

8. Where the MLE of overstatement (of either the initial or extended sample) exceeds 2% or where it is only slightly under 2% (e.g.1.6%, 1.8% etc.) it is unlikely that any acceptable conclusion will be able to be reached through sample extension (or further sample extension). The auditor should therefore report his findings in such a case to the Ministry as called for in section IV.I, paragraph 1.

Investigation of nature of errors discovered

This subsection has been directed exclusively to the drawing of a statistical conclusion based on the frequency of errors observed in a sample of BIUs. None of the statistical work should, however, limit the auditor from evaluating judgementally any other evidence available from the audit work. In particular, it is desirable that the auditor investigate the nature of any errors discovered in his audit sample. If any errors discovered in the sample appear to be systematic in nature, the auditor may well wish to perform additional judgemental audit steps to assess the likely extent of such systematic errors over and above his statistical sample projections of upper error limits.

Combination with other audit conclusions

The statistical projections described in this subsection relate to the projection of a possible error frequency among the population of BIU records and the comparison of this upper error limit with the 2% materiality guideline. Of course, if other known errors are discovered outside the BIU records being subjected to sampling the effect of these known errors should be added to the statistical 'upper error limits' and the total compared to the 2% materiality guideline. For example, if an overstating addition error of 0.5% was discovered in the summarization of the total BIU figure reported on the enrolment reports and, on top of this, the statistical upper error limit for overstatements among the individual BIU records was 1.9%, the total combined 'upper error limit' would be 2.4% (and hence unacceptable without further work).

. If this is an exchange program under the terms of a formal exchange agreement give:

(a) Name and date of agreement: _____

(b) A brief description of its terms:

(c) Name of (each) other participating university:

(d) No. of foreign students in Canada on this exchange (append list of their names) _____

(e) No. of students from your university abroad on this exchange (append list of their names) _____

(f) No. of FTE's claimed for formula grants _____

(g) No. of BIU's claimed for formula grants _____

5. If this is not an exchange program give:

(a) No. of Ontario students enrolled in this study abroad program or course who have registered in Ontario at your university (append list of their names) _____

(b) Have all of the above:

(i) enrolled for credit in degree programs described in their Ontario university's official calendar? ___ Yes ___ No

(ii) been assessed the regular academic fee for their study abroad program/course ? _____ Yes _____ No

(iii) received instruction abroad paid for by their Ontario university ? _____ Yes _____ No

(iv) together generated no more formula income for their Ontario university than twice its direct costs _____ Yes _____ No (exclude from grant claim any students with "No" answers, noting which they are on appended list).

(c) No. of FTE's claimed for formula grants _____

(d) No. of BIU's claimed for formula grants _____

(e) 50% of (BIU's x current BIU value of $ _____) = _____

(f) Man-years of teaching given (based on an Ontario faculty member's normal annual load) by

(i) Ontario university's regular faculty _____

(ii) Other faculty specifically retained by Ontario university for program/course _____

(g) Direct costs of program/course (Formula-eligible expenditures only)

Teaching (attributable salaries and benefits)
Other instructional costs
Physical facilities
Supplies and equipment
Other (specify)

Total (equal to 15(e) or greater)

_____
$ _____

_____	_____	_____	_____
Signature, responsible Dean (or equivalent)	Date	Enrolment Reporting Officer	Date

Other considerations

A number of other considerations may well arise in the conduct of any particular enrolment audit. For example, in some universities the net 'weighted enrolment' is reduced by certain cost-sharing percentages related to affiliated colleges. These cost-sharing percentages are themselves subject to audit and such audit may likewise be performed using statistical sampling procedures. In the latter case it is desirable that the statistical conclusions regarding the gross reported BIU's and the statistical conclusions regarding the cost-sharing percentages be combined before comparison with the prescribed 2% materiality limit.

A discussion of this and other considerations is, however, beyond the scope of this subsection. The auditor who has had some training in statistical sampling techniques will be able to resolve such matters when they are encountered.

[1] Note: With respect to the specific prescribed guidelines of 95% confidence and 2% upper error limit, the Ministry's prescription requires only that these be applied to net overstatements. When, however, the auditor expresses an opinion that the "enrolment reports present fairly the weighted enrolment" he will normally want to satisfy himself in any event that there is reasonable confidence that neither a material overstatement error nor a material understatement error exists. The procedures described in this appendix should usually be adequate to give such reasonable assurance with respect to understatements as well as overstatements.

[2] Note: The mechanics of selecting every nth BIU are complicated if the BIU weights are applied manually at a summary level and are not readily available at a detail level. In some cases, this problem can be solved by stratifying the population into groups, students within each group having identical BIU weights. In a computerized system, however, these problems are not as great.

[3] Technical note: This table is based on Poisson Tables, and represents a slightly conservative (ie. safe) approximation to Binomial Tables (the rigorous values for attribute sampling from large populations). Additional conservatism arises when these values are used for very small populations (e.g. when 20% of the population has been covered in the sample) but the amount of this additional conservatism (from ignoring the 'finite population correction' factor) is slight. In any case, since both the above approximations are conservative, the values are safe for the auditor to use (i.e. if anything they will yield conclusions slightly more pessimistic than those the auditor is really entitled to as a result of his sampling). Further information as to the derivation of the above values statistically can be supplied to any interested party.

[4] Technical Notes:

1. This table represents merely the increments between successive values shown in the previous table. The derivation of the values is subject to the same technical note as the previous table.

2. The above method of evaluation by ranking tainted percentages is supported by Dr. Albert Teitlebaum of McGill University and also corresponds (except for differences in terminology) with that outlined in Chapter V of the Research Study, "Statistical Sampling in an Audit Context", published in March 1972 by the Canadian Institute of Chartered Accountants. It is possible to eliminate some of the conservatism inherent in this method by the use of a computer program, but such a refinement is usually not significant enough to be worthwhile.

[5] Technical note: For 95% confidence this statement is rigorous for populations consisting of up to 3.6% overstatements offset by 1.6% understatements. Even for 6% overstatements offset by 4% understatements the slight inaccuracy of the statement is not large enough to be of material consequence. Auditors should, however, avoid using the offsetting benefit of understatements when gross projected errors in both direction are each several times the 2% materiality limit.

[6] Technical notes:

1. This table is constructed from the previous tables to show what sample size and error combinations yield a 2% UEL.

2. Technically the values shown are only rigorous for one-stage samples. Where a one-stage sample of 590 is found to contain 6 errors there is 95% confidence with respect to a 2% UEL. Where a sample of 590 however, is drawn in two stages (say, 240 first plus a further 350 later) with a possibility of stopping at the end of the first stage (in this case if only 1 error had been found in the first 240), it can be shown statistically that there is a slight fall-off in confidence level (in the range of a few percentage points). That is, if 6 errors are found in total in the two-stage sample of 590, there is not quite 95% confidence with respect to a 2% UEL as indicated above. However, it can be shown that in the range of sample extensions likely to be employed by auditors, such fall-off is slight. Considering the judgemental nature of a choice of 95% confidence in the first place, and the complexities of the statistical refinements necessary to obtain a perfectly rigorous answer, this slight statistical inaccuracy should not be considered of significance.

AUDIT IMPLICATIONS

Reference Formula Manual Section No.	Evidence required that	Possible Audit Test Procedures
III 2.1 (a)(i)	Student has an honours undergraduate degree or equivalent	Examine transcript or other documentary evidence
III 3.6	Program of studies meets requirements of O.C.G.S. appraisals procedure	Where applicable, examine evidence of successful program appraisal
III 2.1 (a)(ii)	Student is making substantial demands on resources of the university	Obtain certificate (see form - Part II)
III 3.9	No units have been claimed for students registered but inactive	" " " " "
III 2.1 (b)(iv)	Student claimed as full-time geographically available and visits campus regularly	" " " " "
III 2.1 (b)(iv)	Student has not been absent for four weeks in any term without required approval	" " " " "
III 2.1 (b)(vi)	Student's employment, if any, does not involve more than 10 hours per week	" " " " "
III 2.1 (b)(v)	Student has not been employed outside the university except by supervisor's permission	" " " " "
III 2.1 (b)(ii)	Student identifies himself as a full-time graduate student	This should be verified by reference to student records (statement of intent, etc
II 3	Minima and maxima provisions have been adhered to.	(a) examine, on a test basis, units claim during the academic year under these provisions (b) Assess the adequacy of records and procedures for the correct determination these claims
General	Adequate records and procedures have been established for the counting of graduate students for entitlement purposes.	Review of internal control

CERTIFICATION OF GRADUATE STUDENT STATUS AND ELIGIBILITY FOR FORMULA OPERATING GRANT SUPPORT

To: (Name of Auditors) _____ Term of 19 ____ 19 ____ Session

Name of Student
Claimed for support: _____ Program of Study: _____

Status reported Full-time ☐ Part-time ☐

	Yes	No
(i) This student made substantial demands upon the resources of the university (i.e.either the student was registered in a regular course of study or was actively engaged in writing a dissertation under continuing supervision).	____	____
(ii) For students accorded full-time status:		
(a) Apart from approved absence (see Item (b) above)) was student geographically available and did he visit the campus regularly?	____	____
(b) If the student was absent from the university for a period exceeding four weeks, was such absence approved as required?	____	____
(c) Was it satisfactorily established that the employment restrictions in regard to the student being claimed for entitlement were complied with?	____	____

8. STUDY ABROAD PROGRAMS AND COURSES

(To be submitted for audit purposes
by responsible deans to Registrar)

1. University offering program/course _____ Fiscal year _____

2. Name of program/course _____

3. Category:
   _____ Study abroad program
   _____ Study abroad course
   _____ Exchange program (under formal agreement)

4. Recognized by Senate for credit when? _____ Ref: _____

5. Designed as an integral part of what degree program? _____

6. Program level (year of study): _____

7. Length of program/course (in weeks): From _____ To _____

8. What is the duration of the program/course in student contact hours? _____
   Is this at least equal to the contact hours for comparable programs/courses (specify below) offered on campus in Ontario during the same session? _____ Yes _____ No.

9. Courses offered abroad: _____ NAME _____ _____ NUMBER _____

10. Location offered (country/city): _____ _____

11. In what year was this program/course started? _____

12. If started before 1981, was MCU approval for formula funding obtained? _____

13. Briefly explain why a foreign locale is essential for this program/course:

9. PROCEDURES TO BE USED IN CONNECTION WITH FOREIGN STUDENT FORMULA FEES:

Section I.6 provides a full description of the policy regarding application of such fees. It continues to be a requirement that the institutions obtain a signed certificate from each student at the time of registration, in which the student declares and attests to his or her exemption status (a warning of a penalty for false disclosure should appear on the certificate) and agrees, if so required, to substantiate the declaration with documentary evidence.

The institution is expected to have in place documented procedures that are followed in respect of all new registrants to assess the reliability of the above certificates.

Procedures in respect of Enrolment Audit as Applicable to Foreign Student Fees

Institutions are now required to provide to the auditor documented procedures that are followed in respect of all new registrants to assess the reliability of the certificates in respect of exemption from foreign student formula fees.

It remains the objective that the auditor's opinion be provided in the format shown in Section IV.1 and apply both to basic income units and formula fees; however, where, taking into account materiality limits, the auditor is unable to ascribe to the formula fee application the same degree of certainty, the Ministry will accept, in lieu of an opinion, in respect of foreign student fees, either as part of the auditor's report in Section IV.1 or as a separate report, an audit opinion in respect of compliance to the procedures in the manner provided in section 5815 of the CICA Handbook, Separate Reports - Reports on Compliance.

The auditor's reporting in respect of foreign student fees must reference and attach a copy of the procedures, provide concurrence (or otherwise) as to the acceptability of the procedures, state whether examination was made in accordance with generally accepted auditing standards and accordingly, included such tests and other procedures as considered necessary in the circumstances and express an opinion as to whether or not the institution has complied with the referenced procedures.

APPENDIX 5.1.1

ONTARIO UNIVERSITIES STANDARD FEES SCHEDULE
1988-89 - REGULAR FEES

UNDERGRADUATE (TWO TERM FEES)

Group 1:	Standard Fee: $ 825
Technology (Lakehead)	

Group 2:	Standard Fee: $1,101
Ryerson (all programs)	

Group 3:	Standard Fee: $1,135
Ontario College of Art	

Group 4:	Standard Fee: $1,064
Dental Hygiene (Technology) Nursing Technology Theology	

Group 5:	Standard Fee: $1,249
Agriculture Arts and Science (Toronto) Arts & Science (1st Year, Trent) Arts, General & 1st Year Honours Arts, Upper Years Honours Commerce & Business Administration Conversion Engineering (Lakehead) Diploma Public Health Nursing Education Environmental Studies Fine and Applied Arts Forestry Household & Food Science Journalism Law Library Science Music Nursing Pharmacy Physical & Health Education	

Group 5: (continued)	Standard Fee: $1,249
Physio & Occupational Therapy Preliminary Year Pre-medicine Secretarial Science Science General & 1st year Honours Science, Upper years Honours Social Work, 1st year Social Work, Upper years Veterinary Medicine	

Group 6:	Standard Fee: $1,355
Architecture Engineering Landscape Architecture Industrial Design Optometry	

Group 7:	Standard Fee: $1,588
Dentistry Medicine	

GRADUATE (ONE TERM FEE)

All programs **:	Standard Fee: $ 627

** Except residency years of Oral Surgery and Oral Pathology, to which a zero standard fee applies (started in 1984-85)

APPENDIX 5.1.2

ALLOWABLE NON-TUITION-RELATED COMPULSORY ANCILLARY FEES
DEFINITIONS

PLACEMENT FEES:

Institutions may charge for the total costs of placing students in jobs for work terms. The following types of costs will be considered eligible for coverage.

(i) placement-service costs including:

- salaries and benefits of that portion of each position directly related to the provision of co-op placement services and work-term activity, including such positions as placement directors, officers, assistants, and administrative and support staff; and

- non-salary expenditures attributable to the provision of co-op placement services and work-term activities including travel, telephone, mailing/postage, printing, photocopying, publicity, computing, equipment and furnishing, supplies and expenses, and external meetings, etc.; and

(ii) maintenance costs of space used for placement service, including costs of utilities, custodial service and security of this space. Eligible space should include:

- the space used for administrative and professional placement staff; and

- interviewing or meeting rooms used in the placement function.

The costs of space used for part of the time for other purposes should be adjusted according to the proportion of usage for placement service.

FEES FOR LEARNING MATERIAL AND CLOTHING RETAINED BY STUDENT
(e.g. micro-computers, dental kits)

FEES FOR MATERIAL USED IN PRODUCTION OF ITEMS WHICH BECOME THE PROPERTY OF THE STUDENT.

FIELD TRIP FEES:

Institutions may charge for the reasonable, direct costs of travel and accommodation of students on field trips. Fees cannot be charged for such things as salaries and benefits or travel and accommodation of faculty or for any specific tuition-related activities for any field trips. Fees cannot be charged for any component of <u>out-of-province</u> field trips in

compulsory courses (as defined in Section 5.1.2.2). (exemptions may be granted by the ministry for reasonable direct costs of out-of-province field trips in compulsory courses for institutions located near inter-provincial or international borders.)

HEALTH/INSURANCE

STUDENT ACTIVITY FEES:

Student Activity fees are those fees the revenue from which is not applied to the costs of instruction in any course or program normally offered for credit toward an eligible degree, diploma or certificate, but is applied to the costs of enhancing the cultural or social or recreational life of the students, or to provide other non-academic services to students. This definition excludes academic services such as library, computing, and learning centre services.

ATHLETIC FEES:

Athletic fees are those fees the revenue from which is not applied to the costs of instruction in any course or program normally offered for credit toward an eligible degree, diploma or certificate, but is applied to the costs of providing athletic or recreational services to students or the costs of athletic associations, or the cost of institutional athletic teams.

STUDENT GOVERNMENT FEES

TRANSPORTATION/PARKING CHARGES

STUDENT REFERENDA:

Fees approved by student referenda for purposes not covered by operating revenue (grants and fees) are permissible.

Appendix 5.1.2.2

CERTIFICATION OF COMPULSORY ANCILLARY FEES CHARGED TO STUDENTS

(UNIVERSITY LETTERHEAD)

TO: Rodger L. Cummins
Director
University Relations Branch
9th Floor, Mowat Block
Queen's Park, Toronto
M7A 1L2

This is to certify that $_____ was collected during the academic year 19__ to 19__ from students registered at (name of institution) in the form of compulsory ancillary fees. All these fees conform to the definitions of "allowable non-tuition-related compulsory ancillary fees" as provided in Appendix 5.1.2.3 of the Ontario Operating Funds Distribution Manual with the exception of the fees outlined below:

We understand that any revenue collected for fees which do not conform to the prescribed definitions will be deducted from the (name of institution) operating grant.

_____
Executive Head
(Name of Institution)

_____
Chairperson, Board of Governors
(Name of Institution)

APPENDIX 5.1.3

ONTARIO UNIVERSITIES STANDARD FEES SCHEDULE
1988-89 - DIFFERENTIAL FEES

UNDERGRADUATE (TWO TERM FEES)

GROUP I (TYPE A)*	REGULAR FEE	ADDITIONAL FEE	TOTAL FEE
PROGRAM GROUP 1	$825	$3,885	$4,710
PROGRAM GROUP 2	$1,101	$3,609	$4,710
PROGRAM GROUP 3	$1,135	$3,575	$4,710
PROGRAM GROUP 4	$1,064	$3,646	$4,710
PROGRAM GROUP 5	$1,249	$3,461	$4,710

GROUP II (TYPE B)*	REGULAR FEE	ADDITIONAL FEE	TOTAL FEE
PROGRAM GROUP 5	$1,249	$6,428	$7,677
PROGRAM GROUP 6	$1,355	$6,322	$7,677
PROGRAM GROUP 7	$1,588	$6,089	$7,677

GRADUATE (ONE TERM FEES)

GROUP I (TYPE A)*	REGULAR FEE	ADDITIONAL FEE	TOTAL FEE
Theology only	$627	$1,728	$2,355

GROUP II (TYPE B)*	REGULAR FEE	ADDITIONAL FEE	TOTAL FEE
All other programs	$627	$2,252	$2,879

REGISTERED BEFORE SEPTEMBER 1/82	REGULAR FEE	ADDITIONAL FEE	TOTAL FEE
(In program)	$627	$675	$1,302

* GROUP I (TYPE A) = Students reported in a program of weight per term of 0.75 or less, or as Upper Years Honours Science, Music, or Environmental Studies at weight 1.0 per term.
GROUP II (TYPE B) = Students in all other programs.